

RAW SEQUENCE LISTING

**The Biotechnology Systems Branch of the Scientific and Technical
Information Center (STIC) no errors detected.**

Application Serial Number: 09/415,795A
Source: IFW/6
Date Processed by STIC: 9/30/05

ENTERED



IFW16

RAW SEQUENCE LISTING

DATE: 09/30/2005

PATENT APPLICATION: US/09/415,795A

TIME: 10:01:14

Input Set : A:\HNV-4301.txt

Output Set: N:\CRF4\09302005\I415795A.raw

3 <110> APPLICANT: ZHOU, PENGBO
 4 HOWLEY, PETER M.
 6 <120> TITLE OF INVENTION: TARGETED PROTEOLYSIS BY RECRUITMENT TO UBIQUITIN
 7 PROTEIN LIGASES
 9 <130> FILE REFERENCE: HNV-043.01
 11 <140> CURRENT APPLICATION NUMBER: 09/415,795A
 12 <141> CURRENT FILING DATE: 1999-10-08
 14 <150> PRIOR APPLICATION NUMBER: 60/103,787
 15 <151> PRIOR FILING DATE: 1998-10-09
 17 <160> NUMBER OF SEQ ID NOS: 49
 19 <170> SOFTWARE: PatentIn Ver. 2.1
 21 <210> SEQ ID NO: 1
 22 <211> LENGTH: 20383
 23 <212> TYPE: DNA
 24 <213> ORGANISM: Saccharomyces cerevisiae
 26 <400> SEQUENCE: 1
 27 ggatccgtgt cgtaactgcg ttccgtacac cttaaaatga actttccagc aggtgcacca 60
 28 tcttccaatc cattgaaaaa tcttactgat tcttcgacct cctcctggct taagtttgtc 120
 29 tccaaatgaa tatatagcag ccaaataaat atgtttgatc tatcctttgg ctcgattttc 180
 30 gaatagtcca gtatatcaaa taatgttggt gcataagctg cttttgatcc ttgtttttca 240
 31 ttttccgctt ccgtttcttt tacttcattc tgttcattca ccatactttg ctccctgagct 300
 32 ttcgattcga cttccacata cttggaaaga aacctcttgt caattaggcc ggaattatca 360
 33 catatgctaa acaacatatt aataatgtta aatttggtta cgggtgtccac ttcaccatca 420
 34 ttttggtcga ccttttttga agtctccatc aatgagagtt gctcattgcc ccacggcaga 480
 35 tttttcagaa tagatttcag tctaggtgta tcttgcaaaa gtttcggatc attggcatgt 540
 36 aattgtaaaa ctggcacgga gtgaaaagtt ctcaattgcy atgtcatttc taaataaaaa 600
 37 tttatagtgg tgttcaacct accaatgttg accaataacg ctaaaacaca agtagaaaat 660
 38 gctacttggt ggtctaataa tagtttatct ctgagaattt tggaaacatt gatagaagtg 720
 39 gctattgtca acacatacaa ttgtgcgaac gtcaatttat cgttaaatac aaatgtcctt 780
 40 gcatcgctact ctttgtcggt caggttgatt gataatttat cgccatcgat attaatgggt 840
 41 acaatagagt tcttgtatag gggttttaga acattagtga agatttgctt cttgtccatc 900
 42 aacagttctt gcatgaaact gaactgaatg tcctttctat tgaatggctc gccgtcaggt 960
 43 ttcttcaaat gacgattgta tttactggca ttgctttctt tgggtttcct tctaacagtg 1020
 44 ttagttgtca ctggccccgt tgccgtactt gctcctgttg cttcaggcac tgtagaaggt 1080
 45 tcgaagttga gcaagatggt ggtattttct tcttcacttt gcgtggagtc atcatcattt 1140
 46 ttatcgctga tttcaatctc gtgtataact ggaatgcttt ttgtagtcac agtctcggtc 1200
 47 tctgattgaa tggagcttggt ggatgcttct tcttgtgatc ccgattttac agattgcatt 1260
 48 ggagaatctg cttttgtttc gtcagaattg tcttctcgta gttggaaagt atcatgaatt 1320
 49 ggatcgatata ctctcttccc catctttaat tagagtgtcg cttttattta gctttcgatt 1380
 50 ttacttagtt aatcatgaac tigtctccat accatatcag cattcattgg gcgttcttta 1440
 51 cttacttgta ccgttacccg attcgagggt aacctgtttt tcgttgtaca cgatagctca 1500
 52 cagaattgtc ttaatatggg ctaagaaaaa aaaaagtctg attatttctg atactgcaaa 1560
 53 atatatactg gcttgggttaa gaaaagtgtt gcttttagtt ctttacatca agagtcgtta 1620

RAW SEQUENCE LISTING

DATE: 09/30/2005

PATENT APPLICATION: US/09/415,795A

TIME: 10:01:14

Input Set : A:\HNV-4301.txt

Output Set: N:\CRF4\09302005\I415795A.raw

```

54 aattgttttg tgtcataaca gtagtggtct tttgagacat caatcgactc tcaggttttc 1680
55 cttctgttca tcttcttgtt ttcggtaaag gtcagccagc atatttcaat tctctctttt 1740
56 ttgaaataac attatgtaat ctttcaatcc tttctatcca acgtctgcta aataatttat 1800
57 tcaaatgaca tgtagaccag aaaatcgaac gttggataat ttttcatcct gaatcatggt 1860
58 ggtctcaact agagcaattt tttcacgtcc tctgacacaa aactcgataa actgtcgcac 1920
59 cagtttaaaa aaatatgtac gtgtataata actgaattta aaaggatagt aaataatttt 1980
60 tgcattttat ggaatgtcaa aatactaata agtcgcaaat atagctatca aataccataa 2040
61 tttagctact tatagaaaga tgcccaaata cgcacaaaaa aggaccattg cgtcttcttc 2100
62 gtcagttttt tatggaagtt cacttttcca aaatgatggc tacatcaaag taatggaact 2160
64 cgtatcacac attgtcattg aaataaatca ttcacctacc gcaacaacgg atgaaacgag 2220
65 aaagcagaat aatccggagc tgaaagtga agaaccagtt tgtaacctca agaagtggga 2280
66 aaataacact aactttatat tggaagatca tacgaagaat aaaacaaaac tttctagcac 2340
67 agataggata cgtaagtggg ttagaagaca tatattaaag gaagagatcg aaatcctttc 2400
68 ccatggaaaa caattgagta gtattgatga ggattattgc ctttcaaag tttctgtagg 2460
69 atgttcaaga gatctaaata aactcagatc atttcaaaat ttttaggaat ataaaatttc 2520
70 tcagtaagaa aaagaagatg aatgcgttta tagtatttta agttgttcaa tagaatatct 2580
71 tcaatatggt catatgtgga ctaaaagaag attttggtat atgtctataa atttattggt 2640
72 ggtaaacgcc attaagcagc ttccaagaa tatgttatca ttgaggagaa gtacgaaaaa 2700
73 tgattatgca cgattaggaa aaattctgca aggagtatta aaaaatggcc ttcgagaaga 2760
74 aatgaaatct ctttctgatga gcaatgggtc tatggataat ttgatagaca tatgaaaaag 2820
75 tcaaaagtgt ttttggccat atgcagtaaa aacttaccct tcaaattgca aaaccattag 2880
76 ttttattata tttttttttt tttctttcat tgaagtatac acgaaatccc atacgcaaat 2940
77 aaacagtcgt tgtatcatca atttcggctg tctggatggc gactacgaga ggaagcttgc 3000
78 ttgccatgat aggaccaatc tcaattttta atttttcatt aactagctaa ttttctataa 3060
79 tgctctaagt ttcttttttc gttttgtttc tttatagtga tgatgctggt attgtgacgc 3120
80 tatcaaatca tatactgtca tcaatcctca tctcatcggc tccggaacgc gttgaatatg 3180
81 ttgttaaaca agctctttat agctagctat agtagaaaag gaaggaaaga agtctaactg 3240
82 ctgtattatc gactgacaag gggtgtcagt tgccctcttt tattttttgt actccoctga 3300
83 atcgagcgga tgtatttttt aacaaagtat tcagaattgt ttttgataaa tcaaaatttg 3360
84 tcgacgctaa gaaaatgacg gacgtcgtaa ttccgctact aggtttttgt tgcctcatcg 3420
85 tatttgacac ctatttttga cacttttaag gttatatact ttgtttcgga tgtggggtac 3480
86 actcagttga ctgattatga aagatatggc gtagccgttg ggtaggggtt attacacaga 3540
87 aatgaattat accagtgaat ttattctctt tatgtttggt cctacatggt ttccaatcag 3600
88 aagggaattg tatataagga cacaagaaat gtgttggtac gctctgcgcc tcaatgacgg 3660
89 tttatctatc taaaactatt tctttctcgt aataaaaaata caataaataa ttaataataa 3720
90 tatagttgat cgatataaca aaaaaataac agcgaggatg gttagttcaa gtgtttccat 3780
91 tttggggact agcgccaagg catccacttc tctaagtaga aaggatgaaa ttaaactaac 3840
92 cctgaaaca agggaagcta gcttggacat tccatacaaa cccattattg catactggac 3900
93 ggtgatgggt ctctgtctga tgattgcctt tgggtggattc atttttgggt gggatacagg 3960
94 aaccatttca gggtttatta accaaacaga tttcaagaga aggtttgggt agttacaaag 4020
95 ggacggcagt tttcaactat cagatgtcag gacagggcta attgtcggtt tcttcaacat 4080
96 aggttgtgct ttaggtggcc taacgctggg acgcctgggc gatatttatg ggcgtaaaat 4140
97 cggcttaatg tgtgttatac tgggtgatgt tgttgggtatc gtgatccaga ttgcttcttc 4200
98 tgacaaatgg tatcaatatt ttattggtag aattgtttct ggaatgggtg ttggaggtgt 4260
99 tgctgtgctg tcgccaactt tgatctcaga aatttcccca aagcacctaa gaggcacttg 4320
100 tgtctctttt taccagctaa tgattaccct tggaaatttc ttgggctact gtaccaatta 4380
101 tggtaaaaag aaatattcaa attcaataca gtggcgggtt cccttgggtt tgtgttttgc 4440
102 gtgggcaatc tttatggtga ttggaatggg tatggttccg gaatcgccca gatatttagt 4500
103 agaaaaaggt aagtatgaag aagctagaag gtctttggcc aaatcaaca aggtcacagt 4560

```

RAW SEQUENCE LISTING

DATE: 09/30/2005

PATENT APPLICATION: US/09/415,795A

TIME: 10:01:14

Input Set : A:\HNV-4301.txt

Output Set: N:\CRF4\09302005\I415795A.raw

```

104 tactgatcca ggcgttggtt ttgagtttga tactatagtt gcaaatatgg aattagaaag 4620
105 ggctgttgga aatgccagtt ggcacgaact cttctcaaata aaaggagcaa ttctaccaag 4680
106 ggtaataatg ggaatcggtt tccagtcact gcaacagctt actggctgta attatTTTTT 4740
107 ctactacggc acgaccattt tcaatgctgt tggaaatgcaa gactctttcg agacttccat 4800
108 tgtccttggg gctgttaatt ttgcttctac atttgttgca ctatacattg tggataaatt 4860
109 tgggcgtcga aaatgtttat tgtgggggtc tgccctgatg gcaatttggt tcgtcatatt 4920
110 cgccaccgtt ggcgtcacta gattatggcc acaagggaaa gaccaacctt cttcgcaaag 4980
111 tgctggtaat gttatgatcg tttttacttg tttcttcatt ttctcttttg ccattacttg 5040
112 ggctcctatc gcctatgtca ttgtggcaga aacttatcca ttaagagtta aaaatcgtgc 5100
113 catggccatt gcggttggtg cgaactggat gtgggggttc ttgattggat tttcacacc 5160
114 ctttatcact agatccatag gattttctta tggctatggt ttcattgggt gcttaatctt 5220
115 ttctgacttc tacgttttct tctttgtttg cgaaacaaag ggattaactc tggaggaagt 5280
116 taatgaaatg tacgaagaaa gaataaagcc atggaagtcc ggaggttgga ttcccagttc 5340
117 tagaagaaca ccacaacca caagcagtac accattagtt attgttgata gtaaataatt 5400
118 tctaaatatt cttgtactct ggtaaacaga aataacaaca gataatggat tgatgcttta 5460
119 cttctatttc atggagattg gttttatata atagccttta ttaatggcgt cacaaattga 5520
120 aaaaaaaatt aaaaaaata agacggacac atttgcgacg ccggtgaata aatgcatata 5580
121 agtagtttat aagctagcta ctactcagaa ataatttcaa aaaaaaaaag aagtgggcac 5640
122 tttaaaatga agattagcta tagtaaatTA ctgtagtata acaactacct gctatctttc 5700
123 tgaaaaaatc aggcaatgta aggtcaaact tgtaccatcg acatatataa tgttttgaga 5760
124 tataagtaac tagagaccag tttatacagg atcttacctc tttttaccgt tatgaaagct 5820
125 ttattactgc gttgttagta aacacacata ttattttcgg gtagtcctgt cgatgttcca 5880
126 aggctttgca tttatcattg tttccgcttc atcgggtggt ttagtttagt tatctgtatg 5940
127 tgaagtatgt ggataggtgc ttctattatt ggaacaaaac accttaaacy cgcactaggt 6000
128 tataggaaag ggtccattat tcaaagaacy gcttattgaa aagtatgttg taaagctcgg 6060
129 tcatatcgcg catagccacy ataaggcgtg gtgctgcttc atagattgag aggcgcagtc 6120
130 aatacacaac cataccggtg gtttgataaa tgatactatc attccggaag ctctctagta 6180
131 agctgtaggt ggcataatcg gtatctatca tctagtaata gctattgatt tttttctcga 6240
132 ctatgctata tgtgttgtga tgggtcactt agaagtgaag aagtagcaat aaattagaca 6300
133 gacagaagta attgaagcta cattcaacaa catggctaag taaaaaagcg tagaatatca 6360
134 tgatgggttt ttttatcttt taattgcttt ctatgtagta taatggaccg atctttgcaa 6420
135 gtatatatct gtatgtatcc atatttagat ggcagcaagc aatatagatt tgatgagctt 6480
136 atactatttt atcgtccttg tccaaaaagt cttgataaca ttaaaagtca ctaccgtcaa 6540
137 atccatcatc aaatccgccc tcgaaccac cagcatcatc aaatccgccc tcggaccac 6600
138 cagcatcatc accgtagtaa ttgttctcga caacgacagt gtctgggtccg tcatagttgt 6660
139 ggtcgtcaaa tgcgtgttct agcatagctc cacctaacaa acccgcacca acaccaagta 6720
140 aaccacccat catggcaccc cgtgtccac tacctttact ggtgcttggc gcagttccat 6780
141 agtatgcttg ctgtggtgct gctgctggca taggggcttg ttgaggatag taacgctgct 6840
142 gttgagggta ttgagggtag tgaggctgtt gaggtgata gtaacgaggt tgctgtgctt 6900
143 gggcccttgc ttgcacttgc ggtgttgatt gagaagaata aggtggagga gcctggctctg 6960
144 cctgttgacg agaactcttc tcattgttaa cactggtgg aggaccttg ggtcttgccc 7020
145 atgttggtcc ccttggtggt tccactgag agctgttcgt agataaatct acataatacc 7080
146 aagtctggta ttcacatca aaaacagcct tccagccaga aggcacttga ggaggattac 7140
147 ttttactttg agccattact ttaaaatggt ttgggttttt ttatcgactc tcttgtagtg 7200
148 agtgataaaa gcaattcaga aagagtcttt tgattatcat gactaaagta aactttttct 7260
149 tccagctgcc ggctcggta ggtggacgaa aaaaaaagc ctgttgaaat aatactgaat 7320
150 acgttaaaac gtcacagcgc ttgtatatct tgtgagagaa aggcattac cactgttata 7380
151 tgaatataga ttgctcaaca aagcgtgtct tttctgtgt gcttaaaata tagtgtcttt 7440
152 tttgggaaaa aaacgtttat ttacagtatt ctctctctct tctctctatt caacttggtg 7500

```

RAW SEQUENCE LISTING

DATE: 09/30/2005

PATENT APPLICATION: US/09/415,795A

TIME: 10:01:14

Input Set : A:\HMV-4301.txt

Output Set: N:\CRF4\09302005\I415795A.raw

```

153 cgggttcgaag aaaattacgc ataaagaatc aaagaaaggc aaaaattacg ctgtacgatg 7560
154 ggggtcgtttc ccttagctga gtttccatta cgtgatatcc ctgttcctta tagctaccgt 7620
155 gtgtctggcg gtatagcttc ctcaggtagt gttactgcgc ttgttactgc cgctggcact 7680
156 catcgaaaact cgtccacggc taagacagtt gagacagaag acggcgaaga agatatcgat 7740
157 gagtatcaga ggaaaagagc agctggttct ggcgaaatcca ctctgaacg cagtgatttc 7800
158 aaaagggtaa aacatgataa tcacaaaacc ctccatccag ttaacttaca gaacaccggt 7860
159 gcagcgtctg tggataatga cggctctgcac aatttaacag atatatccaa cgatgcagaa 7920
160 aaacttttga tgtctgtgga tgatggttct gccgcacctt ctacattgag tgtaaaccatg 7980
161 ggagtggcat ctcataatgt tgcctctccc actaccgtca atgcggcaac aataactggc 8040
162 agtgatgtta gtaacaatgt taatagtgtt actattaaca atcctatgga ggaaggagcg 8100
163 ctgccgttat caccactgc ttcctctcca ggtaccacaa ctcttttagc taaaactacg 8160
164 aaaactatca acaacaataa taatatcgcc gatttgatag aatccaaaga ttctataatc 8220
165 tcccctgaat acctttctga tgagattttc agcgcaataa acaataatct ccctcacgca 8280
166 tacttcaaaa atttattatt tagattagtt gccaacatgg ataggagtga actatccgac 8340
167 ttggggactt taatcaagga taatttaaag agggacctaa taacgtcttt gccttttgaa 8400
168 ataagtttga aaattttcaa ttatttgcaa ttcgaggata ttataaattc ccttggggtc 8460
169 tcccaaaatt ggaacaaaat aattagaaaa tctacatcgt tgtggaaaaa acttctgata 8520
170 tcggaaaatt ttgtgagccc aaagggtttt aattctctca atctcaaat ctcccaaaaa 8580
171 tacccaaaac tctcacaaac agatcgctt agattatctt ttctggagaa tatattcatt 8640
172 ttaaaaaatt ggtacaatcc caagtttgta ccacaaagga ccacgttaag aggccatatg 8700
173 acgagtgtta ttacgtgctt gcaatttgaa gataattatg tcattacggg ggctgatgac 8760
174 aaaatgatca gagtttatga ttcgataaac aagaaatttc ttctacaact atcaggtcat 8820
175 gatggtgggg tttgggcatt gaagtatgcc catggcggta ttttagtcag cggttctaca 8880
176 gacagaacgg tgcgagtttg ggatattaag aaagggtgtt gtacccatgt gtttaaagggt 8940
177 cataactcta cggtgagggtg cctagatata gtagaatata aaaatatcaa gtacattgtt 9000
178 actggttcga gagataaac tttgcacgtt tggaaattgc ccaaggagtc ctccgttctt 9060
179 gatcatgggg aagaacatga ttatccatta gtctttcata cccctgagga gaacccatat 9120
180 tttgttggtg ttttaagagg acatatggca tctgtaagaa ctgtctcagg ccacggtaat 9180
181 attgtcggtta gtggtccta tgataataca ctgatttgtt gggatgttgc gcaaatgaaa 9240
182 tgtttgtata ttttaagtgg acatacggat cgtattttatt cgacaatcta cgatcatgaa 9300
183 agaaaaagggt gcatctctgc cagtatggat accactatta gaatttgga tttggaaaat 9360
184 atatggaata atggagaatg ttctacgca acaaattcag catcgccatg cgccaaaata 9420
185 cttggtgcta tgtacacttt gcagggtcat acagcttttg tgggtttatt aagattatcc 9480
186 gacaaathtt tggtcagtgc cgtgcagac ggttcaataa ggggttggga cgcaaacgac 9540
187 tactctagaa aattttccta ccatcatacc aatttgagtg caattaccac attttatgta 9600
188 tcggataata ttttggtgag tggatcggaa aatcagttca acatctataa tctacggagt 9660
189 gggaaattgg tccacgcaaa tattctaaaa gatgctgata agatttggtc gggttaatttt 9720
190 aagggcaaaa cacttgttgc agcagttgaa aaagatggac agagcttttt agaaattctg 9780
191 gatttcagca aagcttcaaa aattaactac gttagcaatc ccgtaaactc ctcgctcgctg 9840
193 tctttggaat ccatttctac ttctttgggt ctaacgagga caactataat accatgacct 9900
194 tccccagaga ataagcattg actcatactt agataatata gcttaataag tagttatata 9960
195 atcagtaaaa aagtacaata acaacttcgt acattttatt gagtataaac tgcagctaaa 10020
196 ctgcctggat gtgtcaatht taatttgttt taaaaaagg gtgccgttta ttaattaatg 10080
197 tttcttccct gaaaatatgg aaagtacaag tttttagttg agaagggttt aagaaagttt 10140
198 tgaaaatgat ctaaaaaaat ataaaagcaa tcaaagaaat aaaagctgga aaaatgcgta 10200
199 ataaccgaag tgactaaaaat ttctttacgc gccaaataag aaatcgatgc tcttgaaagt 10260
200 agcaaccatt ttttaataaa tatattcctg atggttcttg gcccaagagt tttcttgaac 10320
201 ttttaacgtt aagaagttga ttctgctgat ttttttcaag ttatcaagcg ttatgttttg 10380
202 aaacatctgt tccgttttca gtttttcaaa aagatcgata ttctcttgag aattaggaag 10440

```

RAW SEQUENCE LISTING

DATE: 09/30/2005

PATENT APPLICATION: US/09/415,795A

TIME: 10:01:14

Input Set : A:\HMV-4301.txt

Output Set: N:\CRF4\09302005\I415795A.raw

```

203 ttctacgctc aacctcccggt gggcagaaga aatacaaaag ctaataacaat tgtggttagaa 10500
204 taaagtttcta atattatcta attagtagta ttcatgttac tagtatatta tcacatgata 10560
205 tttctcaaat tggacaatgt aaataatgag tgtttttatg acacaatctt tatcggttaga 10620
206 tgtttcaacg ttccaaggct tggttctatc gctcttctct tcaaattgta atcggttggtc 10680
207 atgataaaca cgtacgggaa aaaaaaaaaa agtatcaata acgcgtaaag tgaatagagt 10740
208 attggattct ataagaccga agacgctcat atcacatctc ataaaatcac ttaaagcaag 10800
209 catccagagg ctattgataa aaagcaggca caaggagacg caatgggacg tttagttggc 10860
210 ttagaactaa gtaatttcaa gtctataga ggcgttacca aggtaggatt cggcgagtcg 10920
211 aatttcacaa gtattatcgg tctaaccgga tctggtaaag cgaatatgat ggatgctatc 10980
212 tcattcgtac tcgggtgtgcg gagtaatcat ttgagggtcaa acatcttgaa agatttaate 11040
213 tatagagggtg ttctaaacga tgagaatagt gacgattatg ataacgaggg cgctgcctct 11100
214 tcgaaccac aatccgcata cgtgaaggca ttttatcaaa aaggtaacaa actggtggag 11160
215 ctgatgagga taatttccag aaacggtgac actagttata aaattgatgg aaaaactgtc 11220
216 tcctataagg actattctat atttcttgag aacgaaaata ttcttatcaa agccaaaaat 11280
217 tttctagtgt tccagggtga tgttgagcaa attgcagcac aatctcccggt agaattatca 11340
218 agaagtttg aagaagtatc aggttctatc caatacaaaa aggagtatga agagttgaag 11400
219 gaaaagattg agaaattaag caaatctgca accgaatcta taaaaaatag gagaaggatc 11460
220 catggagaat tgaagacata taaagaaggt atcaataaga acgaggagta taggaaacaa 11520
221 ttggacaaaa aaaatgaatt acagaagttc caggctctat ggcagttata tcatttagag 11580
222 caacaaaaag aggagctaac ggacaagctg tccgcattaa actctgaaat atcgctctta 11640
223 aagggaaaaa taaataacga gatgaaatca ttacaacgct caaaatcttc ctttgttaaa 11700
224 gaaagcgag taatttctaa gcaaaaaagt aaattagatt atatcttcaa ggataaggaa 11760
225 aaattagtct cggatttacg gctcataaag gttcctcaac aggcagcagg gaagcgaatt 11820
226 tcccatatag aaaaaagaat cgaaagttta cagaaagatc ttcaaagaca gaagacttat 11880
227 gtggagagat ttgaaacaca actaaaagtg gtgaccagat caaaggaagc ttttgaagag 11940
228 gaaatcaaac aatctgctag aaactatgac aaattcaagc taaatgaaaa tgatttaaaag 12000
229 acatataatt gcttacatga aaaatatctg actgaagggtg ggtcaatcct agaagaaaaa 12060
230 attgccgttt tgaacaacga taagcgagaa atccaagagg aattggagag attcaacaaa 12120
231 agggcgagata tttctaaaag aaggataacg gaggagcttt ctataacagg agaaaaattg 12180
232 gacacgcaat taaacgattt aagagtttct ttgaatgaga aaaacgcctt tcatactgaa 12240
233 cgtttgacag agctgaaaaa attacaatct gatattgaat ctgctaataa tcaagaatac 12300
234 gacttaaatt tcaagttgag ggaaacggtg gtttaagatcg atgacttgag tgctaataca 12360
235 agagaacaa tgaaagaaag aaaactaaga gaaaatatag caatggtgaa aagattcttc 12420
236 cccggagtaa aaggtcttgt tcatgatctt tgtcacccaa aaaaggagaa atatggcttg 12480
237 gcagtgtcta ccattctagg taagaacttt gattccgtca ttgtagaaaa ttttaaccgta 12540
238 gctcaagaat gcattgcatt tttgaagaag caacgtgcgg gcaactgcac tttcatacca 12600
239 ctagacacaa ttgagacaga gttacctaca ttatcattgc ctgactcaca agactatatt 12660
240 ttatcaatta atgctattga ctacgagccg gaatatgaaa aagcgatgca atatgtgtgt 12720
241 ggcgattcca tcatatgtaa tacgttgaat attgctaaag atctgaaatg gaaaaagggc 12780
242 ataagaggca aattggttac aattgaaggt gctttgatcc acaaggccgg tttgatgaca 12840
243 ggtggtatat caggagatgc caataatagg tgggataaag aagaatatca aagcttaatg 12900
244 tctttaaaag acaattact aatccaaatc gatgaacttt ccaacggtca acgctctaate 12960
245 tcaatcagag caagagaagt tgaaaatagt gtttcactat tgaactcgga catagcaaat 13020
246 ttgagaactc aagtaacaca acaaaaacgc tccttggatg aaaatcgttt agagattaag 13080
247 taccataatg acttgataga gaaagaaatt caaccgaaga taactgaact aaagaagaag 13140
248 ctagatgatt tagaaaatac taaagataat ttagtgaaag agaaggaggc tttacaaaat 13200
249 aatattttca aagaattcac tagtaaaatt ggctttacaa tcaaagaata tgaaaatcat 13260
250 tccggtgaat tgatgagaca acaatctaaa gaattacagc agttacaaaa acaatttttg 13320
251 accgttgaaa ataagttgca gtttgagaca gacagactaa gtactactca aagaagatat 13380

```

RAW SEQUENCE LISTING ERROR SUMMARY DATE: 09/30/2005
PATENT APPLICATION: US/09/415,795A TIME: 10:01:15

Input Set : A:\HNV-4301.txt
Output Set: N:\CRF4\09302005\I415795A.raw

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:14; Xaa Pos. 3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23

Seq#:14; Xaa Pos. 24,26,27,28,29,30

Seq#:17; Xaa Pos. 1,2,3

Seq#:33; N Pos. 20

VERIFICATION SUMMARY

DATE: 09/30/2005

PATENT APPLICATION: US/09/415,795A

TIME: 10:01:15

Input Set : A:\HNV-4301.txt

Output Set: N:\CRF4\09302005\I415795A.raw

L:2143 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:14 after pos.:0

M:341 Repeated in SeqNo=14

L:2200 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:17 after pos.:0

L:2510 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:33 after pos.:0